

Revised Claims
(received at the International Office on February 1, 2005)

Claims

1. Sliding door (10) with a guide (16, 18) for a door leaf (14), which can be moved in the guide between an open position and a closed position, and with a locking device, which locks the door leaf (14) in the closed position by means of a nonpositive connection,

– where the locking device consists of

- drive means (42),
- force-transmitting means (54), which cooperate with the drive means (42),
- locking elements (80), and
- motion converters (58), which move the locking elements (80);

– where the locking elements (80) are moved from a free position, in which the door leaf (14) is not held, into a hold position, in which the door leaf (14) is held by friction;

– where a frame (12) is provided, which, when the door leaf (14) is in the closed position, at least partially covers the edge areas of the door leaf (14) on the first and/or second side (44, 48) of the door leaf (14); and

– where, under the action of the force-transmitting means (54) and the drive means (42), the motion converter (58) can be moved in a first direction relative to the periphery of the frame (12), parallel to one side (44, 48) of the door leaf (14), as a result of which it moves the locking elements (80) in a direction perpendicular to the first direction from the free position to the hold position, whereas, when the motion converter is moved in the other peripheral direction, it moves the locking elements from the hold position to the free position,

characterized in that

- a slide (76) with a guide link (88) is installed movably in the motion converter (58); in that
 - the locking element (80) is immobilized in the direction parallel to the plane of the door leaf (14) but is free to move in the direction perpendicular thereto between the free position and the hold position; in that
 - the locking element (80) is connected to the guide link (88) of the slide in such a way that the guide link (88), upon the movement of the slide (76) in the one peripheral direction or the other, moves the locking element (80) from the free position into the hold position or vice versa.

2. Sliding door according to Claim 1, characterized in that the frame (12) has a first frame part (50) assigned to the first side (48) of the door leaf (14); in that stop means (92) for the door leaf (14), acting perpendicular to the sliding direction of the door leaf (14), are provided in the first frame part (50); and in that the locking device presses the door leaf (14), when in the locked state, against the stop means (92), perpendicular to the sliding direction of the door leaf (14), so that the first side of the door leaf (14) rests by a frictional connection against the stop means (92) and is thus locked nonpositively in its closed position.

3. Sliding door according to Claim 1 or Claim 2, characterized in that the locking elements (80) of the locking device are located in the second frame part (46) assigned to the second side of the door leaf (14), which locking elements press the door leaf (14) against the stop means (92) in the first frame part (44) when the door leaf is locked.

4. Sliding door according to one of Claims 1-3, characterized in that the frame (12) completely covers the entire peripheral edge area of the first and second sides of the door leaf (14).

5. Sliding door according to Claim 4, characterized in that part of the guide (16, 18) is located inside the frame (12).

6. Sliding door according to one of the preceding claims, characterized in that the locking elements (80) and the motion converters (58) are located in the second frame part (40).

7. Sliding door according to one of the preceding claims, characterized in that the guide link (88) guides the locking element (80) across a slack point (90) just in front of at least one of its end positions.

8. Sliding door according to one of the preceding claims, characterized in that the force-transmitting means is designed as a link chain (54), with which the pinion (52) of the drive means (42) engages.

9. Sliding door according to one of the preceding claims, characterized in that the locking element is designed as a rotatably supported roller (80).

10. Sliding door according to Claim 9, characterized in that the roller (80) is a maintenance-free ball bearing.

11. Sliding door according to one of the preceding claims, characterized in that the stop means are provided with a seal (92).

12. Sliding door according to Claim 11, characterized in that, when the door leaf (14) is in the closed position and the locking elements (80) are in the hold position, the seal (92) rests on the entire peripheral edge area of the first side of the door leaf (14), so that the first side of the door leaf (14) is completely sealed off from the second side of the door leaf (14).

13. Sliding door according to Claim 11 or Claim 12, characterized in that the seal (92) consists of elastomeric material.

14. Sliding door according to one of Claims 14-16, characterized in that, next to the seal (92), a fire blocker (92a) is provided, which prevents leaks from occurring in the seal (92) under the effect of heat and fire.

15. Sliding door according to one of Claims 14-17, characterized in that the seal (92) is introduced in the form of a tape into a groove located in the first frame part (48).

16. Sliding door according to one of Claims 1-18, characterized in that the door leaf (14) has a sealing lip (108), especially a welded-on metal wire, assigned to the seal (92).

17. Sliding door according to one of the preceding claims, characterized in that the frame (12) is made of titanium sheet.

18. Sliding door according to one of the preceding claims, characterized in that detachable retaining means are provided, which hold the door leaf (14) in the open position, and which, as soon as a certain force acting on the door leaf (14) toward the closed position is exceeded, allow the door leaf (14) to be moved toward the closed position.

19. Sliding door according to one of the preceding claims, characterized in that a safety sensor (38) is provided, which blocks the locking device when an object next to the sliding door (10) is removed.

20. Sliding door according to Claim 19, characterized in that the safety sensor (38) has a spring-loaded feeler (96, 98, 100), which is connected to the force-transmitting means, where, when an object is present, the feeler (96, 98, 100) is pushed against the force of the spring (102) to release the force-transmitting means (54), whereas, when no object is present, the safety sensor (38) travels to an end position under the force of the spring and thus blocks the force-transmitting means (54).

21. Sliding door according to one of the preceding claims, characterized in that a blocking device (126) is provided, which makes it possible to lock the door leaf (14) only when it is in the closed position.
22. Sliding door according to one of the preceding claims, characterized by a design resistant to burn-through according to Airbus Standard ABD 0031.
23. Use of the sliding door (10) according to one of the preceding claims as a safety door, which resists predetermined gas pressures when in the closed position.
24. Use according to Claim 23, characterized in that the gas pressures are in the range of 150-3,500 Pa.